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| EXAMINER | |
|---|---|
| DANIELS, MATTHEW J | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/701,879 | MOHANTY ET AL. | |
| | Examiner | Art Unit | |
| | MATTHEW J. DANIELS | 1791 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *06 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,2,4-7,9-15 and 17-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-7,9-15 and 17-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

### Rejections over Medoff in view of Polovina and Sato

1. **Claims 1, 2, 4-7, 9-15, 17-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Medoff (USPN 6207729) in view of Polovina (USPN 3637571) and Sato (USPN 4619962).

**As to Claim 1**, Medoff teaches a process for producing a temperature sensitive natural filler-reinforced thermoplastic polymer composition as an article which comprises:

(c) extruding a mixture of a temperature sensitive natural filler, consisting essentially of cut fibers selected from (3:10-47) plant leaves, stalks, seeds, and pellets (4:57-60) at a melting temperature less than 200 C (5:56-57) without degrading the natural filler (implicit in that the mixer and extruder temperature remains "less than about 190° C", 5:48-49 and 5:56-57).

Medoff is silent to the pre-blending, pre-drying, the metal salt and the particular amount, melt temperature suppression, pelletizing, and the method wherein without the metal salt the material would degrade the temperature sensitive filler.

However, these aspects of the invention would have been prima facie obvious for the following reasons:

Polovina teaches a process for producing a filler reinforced thermoplastic composition comprising pre-drying a thermoplastic polymer to remove moisture (5:10-40) and extrusion forming the polymer and metal salts (4:43) through a die in a first extruder (5:60-61), wherein the additives are present in an amount of 1 to 10% (2:70), and subsequently pelletizing the strand to form pellets (5:60-61). This technique is generally known as a masterbatch process.

Sato teaches a method wherein a mixture consisting essentially of a thermoplastic polymer and additive is provided wherein the melt temperature is suppressed below 200 C by a metal salt (2:22-59) incorporated into a polymer material at about 1-10% by weight (2:55-59). It is submitted that the claimed effect (drawn to what would occur without the metal salt) would be implicit in the method of Sato.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Polovina and Sato into that of Medoff for the following reasons:

(a) Medoff suggests polymeric binders (4:47-55) in pellet form (4:57-62), and Polovina teaches a thermoplastic raw material in pellet form, therefore Medoff suggests the polymer feed material which Polovina provides. Additionally, Polovina provides a known technique applicable to the Medoff process which would lead to the predictable result of supplying dry thermoplastic feed materials having the appropriate amount of additive already contained therein.

(b) Medoff suggests a raw material, such as nylon (4:52), having a mixing or extrusion temperature less than about 190 C (5:55-58), which Sato provides (4:14-16, 2:10-21) by incorporating a metal salt additive. Additionally, Sato provides a known technique applicable to

the Medoff process which would lead to the predictable result of suppressing the melt temperature and extrusion at a lower temperature.

**As to Claims 2 and 4**, Medoff teaches kenaf (3:12, among others) and nylon (4:52). **As to Claims 5 and 6**, in the combination of Sato using a metal halide (nylon + lithium chloride, 2:15-55), it is submitted that a reaction product with the melt is implicit in that the claimed ingredients are used at substantially the same temperatures. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate this aspect of the invention into Medoff for the same reasons as set forth above. **As to Claim 7**, Medoff molds the material into shape (5:50-60). **As to Claim 9**, Medoff teaches fiberglass (5:12), and it is submitted that the glass fiber would be added during the mixing process. Alternatively, rearrangement of the order of adding ingredients is generally considered to be prima facie obvious.

**As to Claim 10**, Medoff teaches a process for producing a temperature sensitive natural filler-reinforced thermoplastic polymer composition as an article which comprises:

(c) extruding a mixture of a temperature sensitive natural filler, consisting essentially of cut fibers selected from (3:10-47) plant leaves, stalks, seeds, and pellets (4:57-60) at a melting temperature less than 200 C (5:56-57) without degrading the natural filler (implicit in that the mixer and extruder temperature remains "less than about 190° C", 5:48-49 and 5:56-57).

(d) melt forming an article from the composition of step (c) (5:57-58)

Medoff is silent to the pre-blending, pre-drying, the metal particular metal salts and amount, melt temperature suppression, pelletizing, the method wherein the melt temperature is

suppressed below 200 C by the metal salt, and the method wherein the extruding without the salt degrades the filler.

However, these aspects of the invention would have been prima facie obvious for the following reasons:

Polovina teaches a process for producing a filler reinforced thermoplastic composition comprising pre-drying a thermoplastic polymer to remove moisture (5:10-40) and extrusion forming the polymer and metal salts (4:43) through a die in a first extruder (5:60-61), wherein the additives are present in an amount of 1 to 10% (2:70), and subsequently pelletizing the strand to form pellets (5:60-61).

Sato teaches a method wherein a mixture consisting essentially of a thermoplastic polymer and additive is provided wherein the melt temperature is suppressed below 200 C by a metal salt (2:22-59) incorporated into a polymer material at about 1-10% by weight (2:55-59). It is submitted that the claimed effect (drawn to what would occur without the metal salt) would be implicit in the method of Sato.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Polovina and Sato into that of Medoff for the following reasons:

(a) Medoff teaches polymeric binders (4:47-55) in pellet form (4:57-62), and Polovina teaches a thermoplastic raw material in pellet form, therefore Medoff suggests the polymer feed material which Polovina provides. Additionally, Polovina provides a known technique applicable to the Medoff process which would lead to the predictable result of supplying dry thermoplastic feed materials having the appropriate amount of additive already contained therein.

(b) Medoff suggests a raw material, such as nylon (4:52), having a mixing or extrusion temperature less than about 190 C (5:55-58), which Sato provides (4:14-16, 2:10-21) by incorporating a metal salt additive. Additionally, Sato provides a known technique applicable to the Medoff process which would lead to the predictable result of suppressing the melt temperature and extrusion at a lower temperature.

**As to Claim 11**, Medoff teaches kenaf (3:12, among others). **As to Claim 12**, Medoff teaches maleic anhydride modified polyethylenes (4:63-67), which the Examiner interprets to be a maleated compatibilizer. **As to Claims 13**, Medoff teaches at least nylon (4:52). **As to Claim 14**, in the combination of Sato using a metal halide (nylon + lithium chloride, 2:15-55), it is submitted that a reaction product with the melt is implicit in that the claimed ingredients are used at substantially the same temperatures. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate this aspect of the invention into Medoff for the same reasons as set forth above. **As to Claim 15**, Medoff molds the material into shape (5:50-60). **As to Claim 17**, Medoff teaches fiberglass (5:12), and it is submitted that the glass fiber would be added during the mixing process. Alternatively, rearrangement of the order of adding ingredients is generally considered to be prima facie obvious.

**As to Claim 18**, Medoff teaches a process for producing a temperature sensitive natural filler-reinforced thermoplastic polymer composition as an article which comprises:

(c) extruding a mixture of a temperature sensitive natural filler, consisting essentially of cut fibers selected from (3:10-47) plant leaves, stalks, seeds, and pellets (4:57-60) at a melting temperature less than 200 C (5:56-57) without degrading the natural filler (implicit in that the mixer and extruder temperature remains "less than about 190° C", 5:48-49 and 5:56-57).

Medoff is silent to the pre-blending, pre-drying, the metal particular metal salts and amount, melt temperature suppression, pelletizing and the method wherein without the metal salt the material would degrade the temperature sensitive filler.

However, these aspects of the invention would have been prima facie obvious for the following reasons:

Polovina teaches a process for producing a filler reinforced thermoplastic composition comprising pre-drying a thermoplastic polymer to remove moisture (5:10-40) and extrusion forming the polymer and metal salts (4:43) through a die in a first extruder (5:60-61), wherein the additives are present in an amount of 1 to 10% (2:70), and subsequently pelletizing the strand to form pellets (5:60-61).

Sato teaches a method wherein a mixture consisting essentially of a thermoplastic polymer and additive is provided wherein the melt temperature is suppressed below 200 C by a metal salt (2:22-59) incorporated into a polymer material at about 1-10% by weight (2:55-59). It is submitted that the claimed effect (drawn to what would occur without the metal salt) would be implicit in the method of Sato.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Polovina and Sato into that of Medoff for the following reasons:

(a) Medoff teaches polymeric binders (4:47-55) in pellet form (4:57-62), and Polovina teaches a thermoplastic raw material in pellet form, therefore Medoff suggests the polymer feed material which Polovina provides. Additionally, Polovina provides a known technique applicable to the

Medoff process which would lead to the predictable result of supplying dry thermoplastic feed materials having the appropriate amount of additive already contained therein.

(b) Medoff suggests a raw material, such as nylon (4:52), having a mixing or extrusion temperature less than about 190 C (5:55-58), which Sato provides (4:14-16, 2:10-21) by incorporating a metal salt additive. Additionally, Sato provides a known technique applicable to the Medoff process which would lead to the predictable result of suppressing the melt temperature and extrusion at a lower temperature.

**As to Claims 19 and 20**, Medoff teaches kenaf (3:12, among others) and nylon (4:52). **As to Claim 21**, Sato uses lithium chloride (2:15-55) as the preferred melt temperature suppressant. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Sato into that of Medoff for the same reasons as set forth above. **As to Claim 22**, Medoff teaches fiberglass (5:12).

### *Response to Arguments*

2. Applicant's arguments filed 6 November 2007 with respect to the Hartman reference have been fully considered and are persuasive. The rejections over Hartman have been withdrawn.

3. Applicant's arguments filed 6 November 2007 with respect to the Medoff reference have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

a) Medoff does not recognize the problem or the manner in which Applicants have solved the problem.

b) Polovina uses alkali metal salts, which are not the salts of the instant invention, and are very different from the claimed invention.

c) Sato has been discussed previously, and provides a "new polymer". In the claimed process, the polymer is already preformed and dried before the salt is added to lower the melting temperature.

4. These arguments are not persuasive for the following reasons:

a-c) To the extent that Applicant's remarks are drawn to the Polovina reference, the reference teaches merely that a masterbatch technique is known in which additives are added and the polymer is pelletized prior to use in a molding process. Addition of additives and pelletization of the modified polymer for use in molding techniques is asserted to be conventional. Polovina is not relied upon for the teaching of the particular additives, but merely for the teaching that those in the art find it conventional to provide a masterbatch pellet already containing any desired additives.

With regard to Sato, the polymer does not appear to be "new" in that the additives do not enter the chain structure of the polymer. They act merely as additives to suppress the melt temperature of known polymers. Suppression of melt temperature would be recognized as a desirable benefit of the additives regardless of their use with or without cellulose or other natural materials. However, in view of Medoff's specific suggestion to provide heat stabilizers (5:7), it is submitted that heat degradation is a recognized problem, and that Sato provides an additive which would act as a heat stabilizer.

With regard to the new claim limitations drawn to the relative drop in extrusion temperature, it is noted that there is a substantial overlap in the types of polymers used in the instant application (Claim 4) and those disclosed by Medoff (4:47-56). In particular, both Medoff (4:52) and Sato (2:15-20) teach nylon. In view of the teaching of the same polymer as claimed in this application, it is submitted that one would have recognized the claimed drop across the 200 C threshold as a result of melt suppression as obvious in using the additives described by Sato.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. DANIELS whose telephone number is (571)272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJD 1/21/08

MJD

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